

REMARKS

This responds to the Office Action mailed on November 22, 2005.

No claims were amended, canceled, or added by this response. As a result, claims 1-27 and 32-35 are now pending in this application. Reconsideration of this application in view of the below remarks is requested.

§103 Rejection of the Claims

A. Rejection: Claims 11 and 16 were rejected under 35 USC § 103(a) as being unpatentable over Kelly et al. (U.S. 5,798,567) in view of Miyazawa (U.S. 2002/0182842).

B. Response: In order for the Examiner to establish a *prima facie* case of obviousness, three base criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference or references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *M.P.E.P.* § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

Claim 11 recites "...an array of solder balls attached to a first portion of the array of lands; at least one discrete component attached to a second portion of the array of lands; and at least one sacrificial component attached to a third portion of the array of lands, the sacrificial component having a fuse therein." By Examiner's own admission, the Kelly et al. device fails to teach a sacrificial component. Also of import is that the Kelly et al. reference only teaches or suggests one type of component attached to the lands on the second surface (corresponds to the first surface of claim 11). The only type of component attached to second surface of Kelly et al. is a decoupling capacitor. According to Kelly et al. the "...decoupling capacitors 67 are connected between a ground conductive area 64 and a power supply conductive area 66 on the

second surface 68.” (See column 4, lines 19-22 Kelly et al.) There is no teaching of any other type of component in the Kelly et al. reference. A decoupling capacitor, such as element 67 in Kelly et al., smoothes out voltage between the power supply and the flip chip integrated circuit 61. A component with a fuse therein functions in a totally different way than a capacitor. Placing a capacitor onto the second surface of Kelly et al. would not do anything to accomplish the function of smoothing out the voltage between the power supply and the flip chip. The Examiner has failed to make out a *prima facie* case of obviousness since there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the Kelly by taking the fuse of Miyazawa and inserting it onto the second surface of Kelly et al. Simply put, modifying Kelly et al. with the fuse of Miyazawa would accomplish nothing with respect to smoothing out the power delivered to the flip chip. The fuse would be nothing more than added cost to the device of Kelly et al. Adding the fuse would not result in “...the desired electrical performance/reliability, device integration and noise reduction...in Kelly et al’s device.” (See Examiner’s reason for combining references found at the last paragraph of page 4 of the Office Action dated November 22, 2005). The absence of a reason for combination of the references makes it appear that placing the fuse of Miyazawa onto the second surface of Kelly et al. is an improper use of the applicant’s claimed invention as a roadmap to the invention.

As a result, there is no suggestion or motivation to modify the reference or to combine reference teachings and therefore the Examiner has failed to make out a proper *prima facie* case of obviousness. Accordingly, claim 11 now overcomes the Examiner’s rejection under 35 USC § 103(a) as being unpatentable over Kelly et al. (U.S. 5,798,567) in view of Miyazawa (U.S. 2002/0182842).

Claim 16 depends from claim 11 and, therefore, includes all the limitations of claim 11 by its dependence. As a result, claim 16 also overcomes the rejection under 35 USC § 103(a) as being unpatentable over Kelly et al. (U.S. 5,798,567) and Miyazawa (U.S. 2002/0182842) for the same reasons as set forth above.

C. Rejection: Claims 17-20, 32-33, and 35 were rejected under 35 USC § 103(a) as being unpatentable over Kelly et al. (U.S. 5,798,567) and Miyazawa (U.S. 2002/0182842) as

applied to claims 1-7 above, and further in view of Hatagishi (U.S. 4,869,972). The Examiner contends that Kelly et al. and Miyazawa teach substantially the entire structure and that the Hatagishi reference teaches the structure of the fuse.

D. Response: This rejection is somewhat incorrect since it discusses applying the references to claims 1-7. Claims 2-7 have been allowed. Applicant therefore is treating this rejection as if the references are applied to only claim 1.

Claims 17-20 depend from claim 11 and include the limitations of that claim by their dependency. Applying the same reasoning as set forth above, there is no reason to combine Kelly et al. (U.S. 5,798,567) and Miyazawa (U.S. 2002/0182842) since there is no reason to place a fuse in device in order to smooth voltage variations between a power source and the flip chip IC. Simply put, a fuse can not perform this function. A capacitor does perform this function. Substituting the fuse having the structure shown in Hatagishi does not overcome the fact that there is no suggestion or motivation to modify the Kelly et al. reference or to combine reference teachings to place a fuse in the Kelly et al. reference. Therefore, the Examiner has failed to make out a proper *prima facie* case of obviousness. Accordingly, claims 17-20 now also overcome the Examiner's rejection under 35 USC § 103(a) as being unpatentable over Kelly et al. (U.S. 5,798,567) and Miyazawa (U.S. 2002/0182842) as applied to claims 1-7 above, and further in view of Hatagishi (U.S. 4,869,972).

Claim 32 recites "...a block of substantially nonconductive material further including: a first major surface; a second major surface; one of the first major surface and the second major surface including: a first solderable surface; and a second solderable surface; and a fuse positioned between the first solderable surface and the second solderable surface." The reasons set forth above with respect to claims 1 and 16, as well as the reasons set forth above with respect to claims 17-20 are equally applicable here. Stated once again, there is no reason to place a fuse in device in order to smooth voltage variations between a power source and the flip chip IC. Simply put, a fuse can not perform this function. A capacitor does perform this function. Substituting the fuse having the structure shown in Hatagishi does not overcome the fact that there is no suggestion or motivation to modify the Kelly et al. reference or to combine reference teachings to place a fuse in the Kelly et al. reference—regardless of the source of the

fuse. Therefore, the Examiner has failed to make out a proper *prima facie* case of obviousness and the rejection of claim 32 now also overcomes the Examiner's rejection under 35 USC § 103(a) as being unpatentable over Kelly et al. (U.S. 5,798,567) and Miyazawa (U.S. 2002/0182842) as applied to claims 1-7 above, and further in view of Hatagishi (U.S. 4,869,972).

Claims 33 and 35 depend from claim 32 and include the limitations of that claim by their dependency. Accordingly, claims 33 and 35 now also overcome the Examiner's rejection under 35 USC § 103(a) as being unpatentable over Kelly et al. (U.S. 5,798,567) and Miyazawa (U.S. 2002/0182842) as applied to claims 1-7 above, and further in view of Hatagishi (U.S. 4,869,972).

The Examiner's stated reasons for obviousness seem unreasonable when one of ordinary skill in the art of smoothing out voltage would use a capacitor to accomplish this function rather than a fuse.

E. Rejection: Claims 21-23, 25-27, and 34 were rejected under 35 USC § 103(a) as being unpatentable over Kelly et al. (U.S. 5,798,567) and Miyazawa (U.S. 2002/0182842) as applied to claims 1-7 above, and further in view of Hatagaishi (U.S. 4,869,972) and Sugita et al. (U.S. 5,068,706). The Examiner contends that it would have been obvious to a person of ordinary skill in the art "...to incorporate at least one non operational SC being positioned with respect to the PCB to prevent at least one discrete component from contacting the ground and power places of the PCB as taught by Sugita et al. so that breakage of components can be prevented and electrical performance/reliability can be improved in Miyazawa, Hatagishi and Kelly et al's device." The Examiner cites the blown fuse of Fig. 6C of Sugita et al. for support.

F. Response: Claim 21 recites an assembly including "...an array of solder balls attached to a first portion of the array of lands; at least one discrete component attached to a second portion of the array of lands; and a plurality of non operational, sacrificial components attached to a third portion of the array of lands." Again, the Kelly et al reference teaches the use of capacitors to smooth out the voltage differences between a power supply and the flip chip IC. There is no reason to place a fuse in device for smoothing voltage variations between a power source and the flip chip IC. The fact that the fuse is functional, nonfunctional, or of a specific structural shape makes no difference. Simply put, a fuse of any shape or size can not perform

this function. A capacitor performs this function. Substituting the fuse having the structure shown in Hatagishi or the inoperability of Sugita et al. does not overcome the fact that there is no suggestion or motivation to modify the Kelly et al. reference or to combine reference teachings to place a fuse in the Kelly et al. reference—regardless of the source of the fuse or its orientation. Therefore, the Examiner has failed to make out a proper *prima facie* case of obviousness and the rejection of claim 21 under 35 USC § 103(a) as being unpatentable over Kelly et al. (U.S.5,798,567) and Miyazawa (U.S. 2002/0182842) as applied to claims 1-7 above, and further in view of Hatagaishi (U.S.4,869,972) and Sugita et al. (U.S.5,068,706) is overcome.

Claims 23, and 25-27 depend from claim 21 and include the recitations of claim 21 by their dependency. Accordingly, claims 22-27 also overcome the Examiner's rejection.

Claim 34 depends from independent claim 32. Claim 32 recites "...a block of substantially nonconductive material further including: a first major surface; a second major surface; one of the first major surface and the second major surface including: a first solderable surface; and a second solderable surface; and a fuse positioned between the first solderable surface and the second solderable surface." Once again, there is no reason or suggestion to add a fuse to the set of capacitors of the Kelly et al. reference. The reasons set forth by the Examiner appear to be using the claimed invention as a roadmap. Accordingly, claim 34, by its dependence on claim 32, overcomes the rejection under 35 USC § 103(a) as being unpatentable over Kelly et al. (U.S.5,798,567) and Miyazawa (U.S. 2002/0182842) as applied to claims 1-7 above, and further in view of Hatagaishi (U.S.4,869,972) and Sugita et al. (U.S.5,068,706).

Allowable Subject Matter

Claims 12-15 and 24 were objected to as being dependent upon a rejected base claim, but were indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant appreciates the indication of allowance but requests that the Examiner reconsider the claims in view of the arguments set forth above.

Claims 1-10 were allowed. Applicant notes the indication of allowance with appreciation.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney ((612) 373-6977) to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 15th day of February, 2006.

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